

REMARKS

Reconsideration of the subject application in view of the preceding amendments and the following remarks is respectfully requested. Claims 1-3, and 7-9 are pending in this application. Claims 4-6 were previously cancelled. Claims 1 and 8 have been amended herein to further define and more particularly point out the subject matter regarded as inventive. Support for the amendments can be found throughout the application as filed and it is respectfully submitted that no new matter has been introduced by this amendment.

Rejections under 35 U.S.C. § 102

Claims 1-2 and 7-9 were rejected under 35 U.S.C. §102(b/e) as being anticipated by U.S. Patent Application Publication No. 2003/0102631 to Takahashi (hereinafter "Takahashi"). Takahashi describes a mechanical seal device (1) for sealing fluid between a rotational shaft (50) and a housing (60) through which the rotational shaft passes. The device includes a two-half type stationary seal ring (2), which has a first sealing face (3) at one end and is retained in a fluid tight manner by the housing so as to be moveable axially. A first two-half type fastening ring (7) is fit to the outer face (6) of the stationary seal ring. A two-half type rotational seal ring (15) has a second sealing face (13) in close contact with the first sealing face. The rotational seal ring couples in a fluid tight manner with the rotational shaft for rotation therewith. A second two-half type fastening ring (30) is fit to the outer face of the rotational seal ring. One or more drive pins (43) extending from fastening ring (40) are mated with engagement sinks (48) for rotating the second fastening ring (30) and the seal ring (15) as shaft (50) rotates.

In contrast to Takahashi, amended Claim 1 recites a divided driver device for a mechanical face seal for mounting to a rotary component and for the transmission of a torque from the rotary component to a seal ring fastened to the driver device. The driver device is axially sub-divided into a radially divided retaining ring for retaining the seal ring and a radially divided mounting ring for mounting to the rotary component. The mounting ring and retaining ring are coupled together for rotation in common. The retaining ring and the mounting ring are coupled together with play in at least the circumferential direction by at least one drive pin projecting axially from an axial end face of one of the mounting and retaining rings and engaging, in a loosely seated manner, in a recess defined in an adjacent end face of the other of the mounting and retaining rings. The retaining ring and the mounting ring are axially engaged together to form a claw clutch, wherein the claw clutch is interrupted by the recess engaged with the at least one drive pin. (See paragraph [0022] as well as Figs. 1 and 2).

Takahashi does not teach, suggest, or disclose a divided driver device as recited in amended Claim 1. In particular, Takahashi fails to disclose a retaining ring and a mounting ring axially engaged together to form a claw clutch, wherein the claw clutch is interrupted by a recess engaged with a drive pin. Instead, in Takahashi on one side face of the second fastening ring (30), fastening ring (40) is fittingly secured to the rotational shaft (50). Drive pins (43) of fastening ring (40) are mated with engagement sinks (48) of fastening ring (30) for rotating ring (30) as shaft (50) rotates. However, Takahashi does not disclose a clutching engagement between rings (30) and (40), let alone a claw clutch that is interrupted by a recess engaged with a drive pin, as recited in amended Claim 1.

Amended Claim 8 recites a divided mechanical face seal having, *inter alia*, a retaining ring and a mounting ring. The retaining ring and the mounting ring are coupled together with play in at least the circumferential direction by at least one drive pin. The at least one drive pin projects axially from an axial end face of one of the mounting and retaining rings and engages, in a loosely seated manner, in a recess defined in an adjacent end face of the other of the mounting and retaining rings. The retaining ring and the mounting ring are axially engaged together to form a claw clutch, wherein the claw clutch is interrupted by the recess engaged with the at least one drive pin, just as recited in amended Claim 1. It has been established above with respect to amended Claim 1 that Takahashi does not describe such a retaining ring and a mounting ring axially engaged together to form a claw clutch, wherein the claw clutch is interrupted by a recess engaged with a drive pin, as recited in amended Claim 8.

Since Takahashi does not teach, suggest, or disclose each and every element recited in amended Claims 1 and 8, it is respectfully submitted that Takahashi does not anticipate amended Claims 1 and 8. Claims 2 and 7 depend from amended Claim 1 and thus include all the elements recited in amended Claim 1. Claim 9 depends from amended Claim 8 and thus includes all the elements recited in Claim 8, as presently amended. Therefore, it is respectfully submitted that for at least the foregoing reasons, Takahashi does not anticipate Claims 1-2 and 7-9. Withdrawal of the rejection under 35 U.S.C. § 102(b/e) is therefore respectfully requested.

Rejections Under 35 U.S.C. § 103

Claims 1-2 and 7-9 were rejected under 35 U.S.C. § 103(a) over Japanese Patent Application No. 08054067A to Kinoshita et al. (hereinafter “Kinoshita”) in view of U.S. Patent No. 3,025,070 to Copes (hereinafter “Copes”).

Kinoshita describes a full split type mechanical seal. The mechanical seal includes a seat ring (15), which is a static element, and seal ring (17) which is a rotary seal element (see Abstract). A sliding, sealing interface is formed where ring (15) abuts (at S) against ring (17) (paragraph [0013]). A retainer ring (20) is integrally fastened against seal ring holder (18), which in turn braces the outer peripheral surface of the seal ring (17) (Abstract). Drive ring (22) is integrally coupled to retainer ring (20) by drive pins (bolts 24) (see Abstract and paragraph [0014]). As shown in Fig. 1, bolts (24) threadably engage a bore in retainer ring (20) (compare Fig. 5, which shows no clearance between bolts (24) and retainer ring (20)). Moreover, bolts (24) engage tightly within corresponding bores in drive ring (22), as shown in Fig. 6. Drive ring (22) is fastened to rotatable shaft (11) by set bolts (23) (paragraph [0014] and Fig. 6). In this configuration, seal ring (17) follows as shaft (11) rotates. Drive ring (22) and retainer ring (20) are each divided into two sections integrally fastened against each other so as to be removable by separating the two sections (see abstract as well as Figs. 5 and 6).

Copes describes a split mechanical seal with a driver device that includes a mounting ring (17 and/or 65) that has an inner diameter somewhat larger than the outer diameter the shaft (12), and which attaches to the shaft (12) by means of radially mounted set screws (18, 70, 85). A retaining ring (23) is connected to the mounting ring (17, 65) so as to receive torque from the shaft. The retaining ring (23) holds a first seal ring (31) against a second seal ring (31'), which is

in turn fixed to a stationary housing (15, 20), in such a manner that when shaft 12 rotates, the retaining ring imparts rotation to the first sealing ring (31) which seals and rotates against the stationary sealing ring (31').

Amended Claim 1 has been described above. It is respectfully submitted that Kinoshita and Copes, considered alone or in combination, do not teach, suggest, or disclose each and every element recited in Claim 1, as presently amended. In particular, Kinoshita and Copes do not disclose a retaining ring and a mounting ring axially engaged together to form a claw clutch, wherein the claw clutch is interrupted by a recess engaged with at least one drive pin, as recited in amended Claim 1. Instead, Kinoshita and Copes describe mechanical seals without any claw clutches. Amended Claim 8 has been described above. It has been established above with respect to amended Claim 1 that Kinoshita and Copes do not describe such a retaining ring and a mounting ring axially engaged together to form a claw clutch, wherein the claw clutch is interrupted by a recess engaged with a drive pin, as recited in amended Claim 8.

Since Kinoshita and Copes, alone or in combination, do not teach, suggest, or disclose each and every element recited in Amended Claims 1 and 8, it is respectfully submitted that Kinoshita and Copes do not render Claims 1 and 8 obvious, nor is there a *prima facie* case of obviousness with respect to amended Claims 1 or 8 based on Kinoshita and Copes. Claims 2 and 7 depend from amended Claim 1 and thus include all the elements recited in amended Claim 1. Claim 9 depends from amended Claim 8 and thus includes all the elements recited in Claim 8, as presently amended. Therefore, in light of the amendments and arguments above, it is respectfully submitted that Kinoshita and Copes, alone or in combination, do not render Claims

1-2 and 7-9 obvious. Withdrawal of the rejections under 35 U.S.C. § 103(a) with respect to Claims 1-2 and 7-9 is respectfully requested.

Claim 3 was rejected under 35 U.S.C. § 103(a) over each of Kinoshita and Takahashi in combination with Copes. Kinoshita, Takahashi, and Copes have been described above. Claim 3 recites a driver device according to Claim 2, wherein the peripherally aligned end faces of the retaining ring have a roughness $\leq 1.0 \mu\text{m}$, preferably $\leq 0.8 \mu\text{m}$, and most preferably $0.5 \mu\text{m}$.

Kinoshita, Takahashi, and Copes do not disclose the particular roughness of the end faces recited in Claim 3, as per Pages 6-7 of the Office Action. Further, it has been established above that Kinoshita, Takahashi, and Copes fail to teach, suggest, or disclose each and every element recited in Claim 1, as presently amended. Claim 3 depends from amended Claim 1 and thus includes all of the elements recited in Claim 1, as presently amended. Therefore, in addition to failing to disclose the roughness, there are whole other elements of Claim 3 that Kinoshita and Takahashi, fail to teach, suggest, or disclose and Copes does not remedy these deficiencies. Therefore it is respectfully submitted that Kinoshita, Takahashi, and Copes, alone or in combination not anticipate or render obvious Claim 3, nor is there any *prima facie* case of obviousness with respect to Claim 3 based thereon. Withdrawal of the rejections under 35 U.S.C. § 103(a) with respect to Claim 3 is therefore respectfully requested.

CONCLUSION

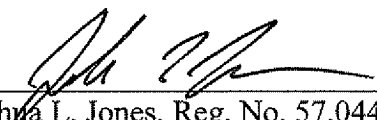
It is respectfully submitted that none of the prior art of record, alone or in combination, teaches, discloses or suggests the invention as presently claimed. Based upon the foregoing, favorable consideration of Claims 1-3 and 7-9 is respectfully requested.

If it is believed that an interview would advance prosecution, the Examiner is invited to call Applicants' representatives at the number below. Likewise, if the Examiner disputes the patentability of any of the pending Claims, Applicants respectfully request an interview with the Examiner to discuss why the Claims are patentable.

It is respectfully submitted that this response, together with the enclosed Request for Continued Examination, is timely filed. The Director is hereby authorized to charge any deficiency in the fees filed, asserted to be filed or which should have been filed herewith (or with any paper hereafter filed in this application by this firm) to our Deposit Account No. 04-1105, under Order No. 62909(51994).

Respectfully submitted,

Date: June 19, 2008



Joshua L. Jones, Reg. No. 57,044
Intellectual Property Practice Group
EDWARDS ANGELL, PALMER & DODGE LLP
P.O. Box 55874
Boston, MA 02205
Tel: (203) 353-6870
Fax: (866) 255-3049
Customer No. 21,874
Attorneys/Agents for Applicants